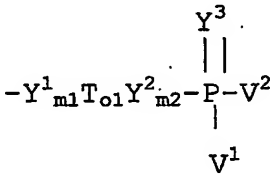
CLAIMS

1. A coated stent for implantation in human vessels, orifices and conduits for creating and sustaining openings there and for preventing restenosis thereof after implantation comprising a stent structure coated with a compound containing a high density, negatively charged domain of at least three vicinally oriented phosphorus-containing radicals.

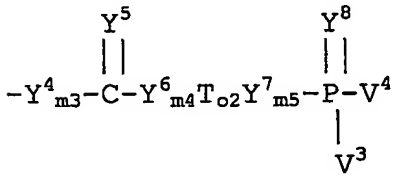
2. A coated stent according to claim 1 wherein the phosphorus-containing radicals have the following formula:

a)



or

b)



wherein

V^1 to V^4 are $Y^8{}_{m6}T_{o3}U$

T_{o1} to T_{o3} are $(CH_2)_n$, CHCH, or $CH_2CHCHCH_2$

o1 to o3 are 0 to 1

n is 0 to 4

U is $R^1Y^9{}_{m7}$, $CY^{10}Y^{11}R^2$, $SY^{12}Y^{13}Y^{14}R^3$, $PY^{15}Y^{16}Y^{17}R^4R^5$, $Y^{18}PY^{19}Y^{20}Y^{21}R^6R^7$, CH_2NO_2, $NHSO_2R^8$ or $NHCY^{22}Y^{23}R^9$

m1 to m7 are 0 to 1

Y^1 to Y^{23} are N R^{10}, NOR^{11}, O or S

and where R^1 to R^{11} are

i) hydrogen

ii) a straight or branched saturated or unsaturated alkyl residue containing 1-22 carbon atoms

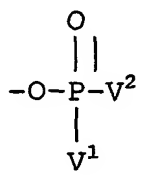
iii) a saturated or unsaturated aromatic or non-aromatic homo- or heterocyclic residue containing 3-22 carbon atoms and 0-5 heteroatoms consisting or nitrogen, oxygen or sulfur

iv) a straight or branched saturated or unsaturated alkyl residue containing 1-22 carbon atoms substituted with a saturated or unsaturated aromatic or non-aromatic homo- or heterocyclic residue containing 3-22 carbon atoms and 0-5 heteroatoms consisting of nitrogen, oxygen or sulfur

v) an aromatic or non-aromatic homo- or heterocyclic residue containing 3-22 carbon atoms and 0-5 heteroatoms consisting of nitrogen, oxygen or sulfur substituted with a straight or branched saturated or unsaturated alkyl residue containing 1-22 carbon atoms.

in the said groups ii-v, the residues and/or the substituents thereof being substituted with 0-6 of the following groups: hydroxy, alkoxy, aryloxy, acyloxy, carboxy, alkoxycarbonyl, alkoxycarbonyloxy, aryloxycarbonyl, aryloxycarbonyloxy, carbamoyl, fluoro, chloro, bromo, azido, cyano, oxo, oxa, amino, imino, alkylamino, arylamino, acylamino, arylazo, nitro, alkylthio or alkylsulfonyl.

3. A coated stent according to claim 2 wherein the phosphorus-containing radicals have the following formula:



wherein V^1 and V^2 are OH, $(CH_2)_p$ OH, COOH, $CONH_2$, CONOH, $(CH_2)_pCOOH$, $(CH_2)_pCONH_2$, $(CH_2)_pCONOH$, $(CH_2)_pSO_3H$, $(CH_2)_pSO_3NH_2$, $(CH_2)_pNO_2$, $(CH_2)_pPO_3H_2$, $O(CH_2)_p$ OH, $O(CH_2)_p$ COOH, $O(CH_2)_pCONH_2$, $O(CH_2)_pCONOH$, $(CH_2)_pSO_3H$, $O(CH_2)_pSO_3NH_2$, $O(CH_2)_pNO_2$, $O(CH_2)_pPO_3H_2$, CF_2COOH
and p is 1 to 4

4. A coated stent according to claim 3 wherein the phosphorus-containing radicals are phosphate groups.

5. A coated stent according to anyone of claims 1-4 wherein a backbone to the high density negatively charged region of vicinally oriented phosphorus-containing radicals is a cyclic moiety.

6. A coated stent according to claim 5 wherein the backbone is a saturated or unsaturated aromatic or non-aromatic homo- or heterocyclic moiety where the heteroatom is nitrogen, oxygen, sulfur or selenium.

7. A coated stent according to claim 6 wherein the cyclic moiety comprises 4 to 24 atoms, preferably 5 to 18 atoms.

8. A coated stent according to claim 7 wherein the cyclic moiety is selected from the group of cyclopentane, cyclohexane, cycloheptane, inositol, monosacharide, disacharide, trisacharide, tetrasacharide, piperidin, tetrahydrothiophyran, 5-oxotetrahydrothiopyran, 5,5-dioxotetrahydrothiopyran, tetrahydroselenophyran, tetrahydrofuran, pyrrolidine, tetrahydrothiophene, 5-oxotetrahydrothiophene, 5,5-dioxotetrahydrothiophene, tetrahydroselenophene, benzene, cumene, mesitylene, naphtalene and phenanthrene.

9. A coated stent according to claim 8 where in the cyclic moiety is selected from the group of alloinositol, cisinositol, epiinositol, D/L-chiroinositol, scylloinositol, myoinositol, mucoinositol and neoinositol.

10. The use according to claim 8 wherein the cyclic moiety is selected from the group of D/L-ribose, D/L-arabinose, D/L-xylose, D/L-lyxose, D/L-allose, D/L-altrose, D/L-glucose, D/L-mannose, D/L-gulose, D/L-idose, D/L-galactose, D/L-talose, D/L-ribulose, D/L-xylulose, D/L-psicose, D/L-sorbose, D/L-tagatose and D/L-fructose.

11. A coated stent according to claim 3 wherein one of the phosphorus-containing radicals is axial and, two of the phosphorus-containing radicals are equatorial.

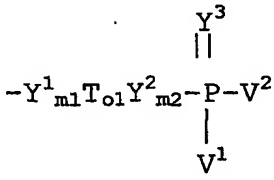
12. A coated stent according to claim 11 wherein the compound is selected from the group of myo-inositol-1,2,6-trisphosphate, myo-inositol-hexa-kis-phosphate, mannose-2,3,4-trisphosphate, rhamnose-2,3,4-trisphosphate, galactose-2,3,4-trisphosphate, methyl-6-O-butyl-α-D-mannopyranoside-2,3,4- trisphosphate, 1,5-anhydro-D-arabinitol-2,3,4-trisphosphate, fructose-2,3,4-trisphosphate, 1,2-O-ethylene-β-D-fructopyranoside-2,3,4-trisphosphate, cyclohexane-1,2,3-triol trisphosphate, 1,5-dideoxy-1,5-iminoarabinitol-2,3,4-trisphosphate, altrose-2,3,4-trisphosphate, methyl-6-O-butyl-α-D-altropyranoside-2,3,4-trisphosphate or derivatives thereof.

13. The use a restenosis resistent stent implantation to a human patient comprising the steps of selecting a coated stent for implantation in human vessels, orifices and conduits for creating and sustaining openings there and for preventing, alleviating or combatting restenosis thereof

after implantation, comprising a stent structure coated with a compound containing a high density, negatively charged domain of at least three vicinally oriented phosphorus-containing radicals.

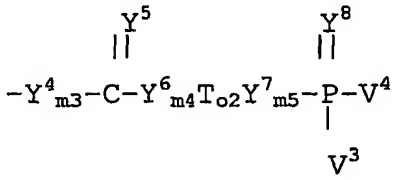
14. The use according to claim 13 wherein the compound containing phosphorus-containing radicals have the following formula:

a)

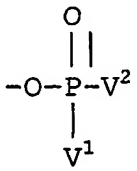


or

b)



15. The use according to claim 13 where the compound containing phosphorus-containing radicals have the following formula:



16. The use according to claim 13 wherein the compound is selected from the group of myo-inositol-1,2,6-trisphosphate, myo-inositol-hexa-kis-phosphate, mannose-2,3,4-trisphosphate, rhamnose-2,3,4-trisphosphate, galactose-2,3,4-trisphosphate, methyl-6-O-butyl-α-D-mannopyranoside-2,3,4- trisphosphate, 1,5-anhydro-D-arabinitol-2,3,4-

trisphosphate, fructose-2,3,4-trisphosphate, 1,2-O-ethylene-β-D-fructopyranoside-2,3,4-trisphosphate, cyclohexane-1,2,3-triol trisphosphate, 1,5-dideoxy-1,5-iminoarabinitol-2,3,4-trisphosphate, altrose-2,3,4-trisphosphate, methyl-6-O-butyl-α-D-altropyranoside-2,3,4-trisphosphate or derivatives thereof.